W. E. NAGEBORN.

CARBURETER.

APPLICATION FILED MAY 3, 1909.

1,018,126. Patented Feb. 20, 1912.

Fig. 1.

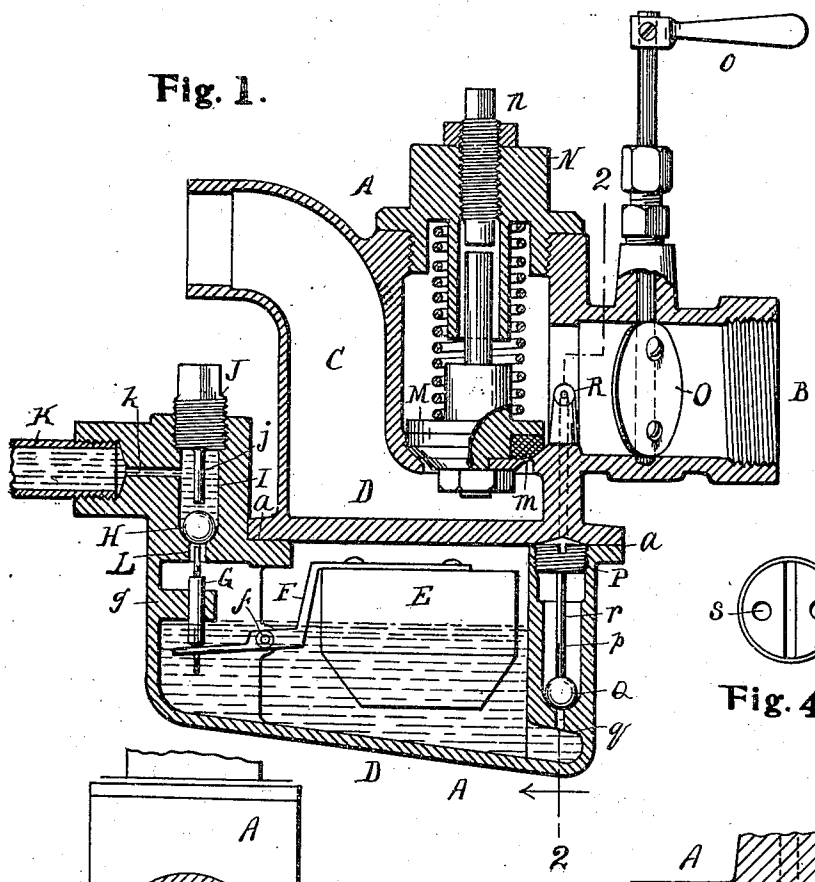

Fig. 4.

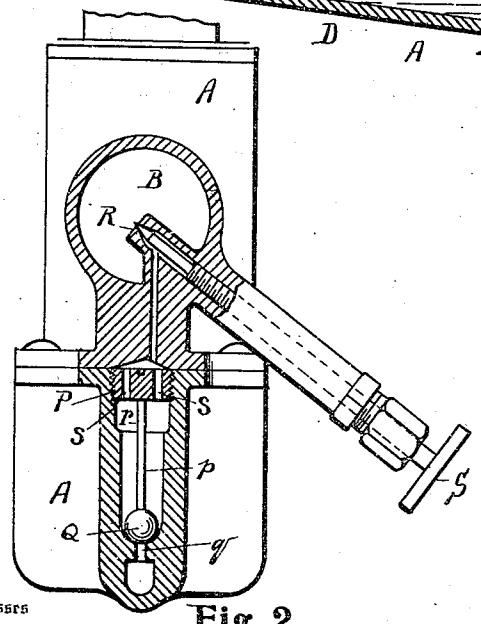

Fig. 2.

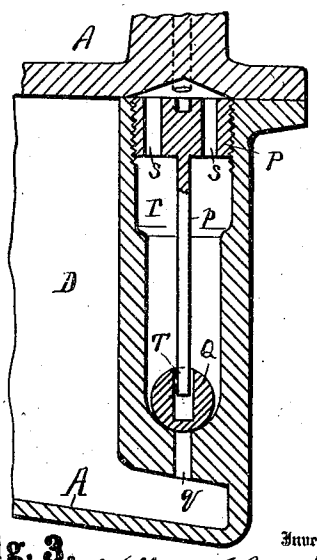

Fig. 3.

Witnesses

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CARBURETER.

1,018,126. Specification of Letters Patent. Patented Feb. 20, 1912.

Application filed May 3, 1909. Serial No. 493,552.

To all whom it may concern:

Be it known that I, WILLIAM E. NAGEBORN, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Carbureters, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to carbureters for internal combustion engines and consists in the improvements hereinafter described and pointed out in the claims.

In the accompanying drawing,—Figure 1 is a vertical central section of a device embodying my invention. Fig. 2 is a section in the plane indicated by the line 2—2, Fig. 1. Fig. 3 is an enlarged detail section showing the ball-valve, also in section. Fig. 4 is a plan view of the plug P.

A, A indicates the casing of the carbureter as a whole.

B is the passage which communicates with the intake passage of the engine.

C is the intake passage for air.

D indicates the gasolene reservoir.

E is a float in the reservoir D, connected to a lever F, which lever is pivoted at *f* and extends beyond said pivot.

G is a reciprocating rod adapted to be guided in an aperture through a projection *g* which extends from the wall of the reservoir D. The rod G rests toward its lower end upon the arm of the lever F opposite that to which the float E is attached.

L is an aperture leading into the reservoir D and having a valve seat around its outer end which may be closed by a ball-valve H.

I is a chamber a little larger than the ball-valve H, against the lower end of which said ball-valve rests.

K is the intake pipe for gasolene.

k is a small aperture forming a communication between the chamber I and the pipe K.

J is a screw-threaded plug, the threads of which take into the threads in the wall surrounding the upper end of the chamber I.

j is a stem extending downward from the center of the plug J to a position adjacent to the ball-valve H. The lift of the ball-valve H may be regulated by screwing the plug J up or down. It will be observed that while the ball-valve H nearly fills the chamber I that the passage *k* is quite small and that the chamber I is full of fluid. Thus a sudden movement of the ball H, as for instance by the jarring of a vehicle, is prevented.

When the fluid in the reservoir D has attained its normal level, the float E has raised up until the upper end of the rod G, supported by the lever F, is just below the ball-valve H, so that the said ball-valve prevents the further inflow of fluid. When the level of the liquid in the reservoir D has fallen slightly, the float E will fall with it and the rod G will force the ball H from its seat, permitting fluid to run in from the chamber I to restore the normal level of the fluid in the reservoir D. I have found that this arrangement maintains the normal level of the fluid in the reservoir D more constant than the form in which the valve is forced to its seat by the buoyancy of the float, inasmuch as in the latter form of the device, the valve will not become tight until a considerable and somewhat variable pressure has been brought on it, which involves a variation in the level to which the liquid rises in the reservoir. In the form here shown, it will be observed that the rising of the fluid level in the reservoir D simply removes the obstruction from the path of the inlet valve and permits it to close by gravity.

M is a valve interposed between the passages B and C and upon the opposite side of the delivery spout R to that of the throttle valve O. I form this valve in the usual way, except that I provide a washer *m*, of a composition of water glass and asbestos, which composition is not injured by heating, deadens the noise of the valve, and closes tight upon its seat.

R is the delivery spout from which gasolene or combustible fluid is sprayed into the intake passage B. The spout R is governed by a needle valve S (Fig. 2) and communicates with a chamber *r* formed in this instance in the wall of the reservoir and having its lower end extending below the level of the liquid in said reservoir.

q is a small passage forming a communication between reservoir D and the chamber *r*, and having a valve seat around its upper end and below the level of the liquid in the reservoir.

Q is a ball-valve adapted to close upon the valve seat surrounding the end of the

passage q which is at the bottom of the chamber r. The chamber r is adapted to trap a relatively small quantity of oil therein, from whence it passes to the delivery nozzle.

P is a screw-threaded plug, its threads engaging the internal threads in the walls of the chamber r, at the upper end thereof.

p is a rod extending downward from the center of the plug P.

s, s are apertures formed through the plug P.

T (Fig. 3) is a cavity formed in the ball-valve Q, into which cavity the lower end of the rod p projects, so that said rod shall form a guide for the ball-valve Q. By screwing the plug P up or down, the lower end of the rod p is brought farther from, or nearer to, the bottom of the cavity T, thus limiting the extent of travel of the ball-valve Q.

O is a throttle valve located in the passage B between the delivery nozzle R and the engine, and e is a handle by which the valve O may be manipulated.

N is a screw cap closing an aperture through which the valve M may be introduced.

n is a set screw passing through the cap N and adapted to be adjusted up and down to limit the motion of the valve M, by interposing its lower end in the path of travel of a projection from said valve.

I form the casing A, A in two parts which are united on surfaces in the plane of the line a, a. (Fig. 1.) These parts are united by lag screws and they may be separated to permit access to the plug P which may be adjusted by a screw-driver engaging in the usual slot in the head of the plug P, as indicated in Fig. 4.

By the above described arrangement, the throttle prevents a direct draft on the delivery nozzle, and the vacuum may be regulated by adjusting the lift of the valve M and the delivery is affected by the resistance that the valve M offers to being raised from its seat.

On the suction stroke of the engine the whole chamber r becomes filled with oil up to the top of the nozzle, and the ball Q rises as far as permitted by rod p. On the cessation of the suction the oil in chamber r begins to flow back to the oil float chamber, and the ball Q will return to the seat. The amount of oil which will return from chamber r to the float chamber is that below ball Q. As soon as ball Q seats it traps a certain amount of oil in r and the amount so trapped varies with the adjustment of rod p. Owing to the relative diameters of chamber r and the nozzle duct a small difference of level of trapped oil in chamber r would make a large difference in the level in the nozzle duct. Therefore an adjustment of rod p will effect considerable difference in the time which will elapse between the beginning of suction and that when oil begins to flow.

Claims:—

1. In a carbureter, a reservoir, a chamber r, a passage communicating with said reservoir and chamber, a valve in said chamber adapted to close one end of said passage and having a cavity formed therein, said chamber being provided with screw-threads in its walls, a perforated screw-threaded plug engaging said threads, a rod extending from said plug into the cavity in the ball-valve, substantially as and for the purpose described.

2. In a carbureter, a reservoir, a chamber r, a passage communicating with said reservoir and chamber, a valve in said chamber adapted to close one end of said passage and having a cavity formed therein, said chamber being provided with screw-threads in its walls toward its upper end, a perforated screw-threaded plug engaging said threads, a rod extending from said plug into the cavity in the ball-valve, a part of said carbureter being removably secured to said reservoir at the plane of the upper end of said chamber.

3. In a carbureter, a reservoir, a chamber r, a passage communicating with said reservoir and chamber, a valve in said chamber adapted to close one end of said passage, said chamber being provided with screw-threads in its walls, a perforated screw-threaded plug engaging said threads, said plug being adapted to limit the movement of said valve, substantially as and for the purpose described.

4. In a carbureter, a reservoir, a chamber r, a passage communicating with said reservoir and chamber, a valve in said chamber adapted to close one end of said passage, said chamber being provided with screw-threads in its walls toward its upper end, a perforated screw-threaded plug engaging said threads, a rod extending from said plug to a position adjacent to said valve, a part of said carbureter being removably secured to said reservoir at the plane of the upper end of said chamber, for the purpose described.

In testimony whereof, I sign this specification in the presence of two witnesses.

WILLIAM E. NAGEBORN.

Witnesses:

VIRGINIA C. SPRATT,

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